

Babak Ranjbaran

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SKILLS

Languages: Python, C, C++, SQL

Frameworks & Tools: Flask, Docker, NumPy, Pandas, Matplotlib, Bootstrap, jQuery

Databases: MySQL, PostgreSQL

Concepts: Neural Networks, Optimization Algorithms, Image Processing, Numerical Methods

EDUCATION

Yildiz Technical University - Computer Engineering

Sep 2023 - Jun 2027

- Built numerical solvers, object-oriented applications, and low-level system utilities using C, Python, and Java.

Courses: Numerical Analysis, Optimization techniques, Data Structures and Algorithms, Object-Oriented Programming

PROJECTS & RESEARCH

Neural Network Optimizer Comparison For Image Classification - [Github](#)

- Implemented a neural network model in C to analyze and compare the performance of Gradient Descent (GD), Stochastic Gradient Descent (SGD), and Adam optimization algorithms.
- Conducted extensive data visualization using Matplotlib to clearly demonstrate the efficiency and convergence rates of each optimizer.

Advanced Numerical Methods Toolkit - [Github](#)

- Developed a comprehensive C-based mathematical tool implementing numerical methods and calculus operations such as the Bisection Method, Newton-Raphson, Gaussian Elimination, Simpson's Rule, and Gregory-Newton Interpolation.
- Utilized the Shunting Yard algorithm for efficient parsing and evaluation of mathematical expressions into Reverse Polish Notation (RPN).

TourJett – Full-Stack Travel Booking Platform - [Github](#)

- Developed a full-stack travel booking platform using Flask, PostgreSQL, and JavaScript enabling users to browse and book tour packages worldwide
- Implemented user authentication, booking system, admin dashboard, and review functionality with responsive frontend using Bootstrap and jQuery
- Deployed application using Docker containers with comprehensive database design for managing tours, reservations, and customer data